In the United States Supreme Court

OCTOBER TERM, 1902. **No. 183.**

MARTIN, FULLER & COMPANY,
Petitioners and Appellants (Libellants),

vs.

S. S. SOUTHWARK,
Appellee (Respondent).

COUNTER STATEMENT OF APPELLEE.

Under Bill of Lading, dated July 3, 1894, the libellants shipped by the steamship "Southwark" bound from Philadelphia to Liverpool nine hundred and sixty-one quarters of fresh beef. The Bill of Lading contained the usual stipulations, including exceptions for loss or damage "*by heating, decay, putrefaction * * * or any loss or damage arising from the nature of the goods.*"

In addition there was printed across the face of the Bill of Lading in red letters and bold clear type what is known as the "dressed meat clause" as follows:

"*It is expressly agreed that the goods shipped hereunder are absolutely at the risk of the owners in every respect, and that the carrier is responsible for no loss, delay or damage*

thereto however arising, including stowage and **all risks of breakdown or injury however caused, either to its refrigerator or its machinery, even though arising from defects existing at or previous to the commencement of the voyage;** *also that in case of the meat becoming, from any cause in the opinion of the master of the vessel, putrid, dangerous or offensive to the passengers or crew, it may be thrown overboard or otherwise disposed of, without liability to the carrier for consequent loss.*"

The "Southwark" was equipped with a Kilburn refrigerator of approved type, considered by all the witnesses a very good machine for marine purposes. (Record, 90.) The machine had been built for another vessel; after four or five years' service, had been transferred in the latter part of 1893 to the steamship "Southwark," having been first thoroughly overhauled by its makers (Record, 157), and after installation in the "Southwark," (within a few months of the voyage in question) had been carefully examined by a member of the firm of makers and found in good condition. (Record, 134.)

The machine worked perfectly during the voyages of the "Southwark" prior to July, 1894, and also during several subsequent voyages, and was then transferred some ten months later to the Steamship Rhynland where it was reported to be still working satisfactorily. (Record, 183, 195, 162, 173, 138.)

On arrival of the "Southwark" at Philadelphia in the latter part of June, 1894, the refrigerating machine received the usual overhaul (Record, 182, 194), and was rigidly inspected by the superintendent of the repair shop, having charge of the work of repairs of the ship's machinery, and charged with the duty of inspecting the machinery, including the refrigerating apparatus. Some minor repairs on the brine pump, and pipe-fitting con-

nections and circulating pump were made by him, (Record, 141) and on the day the vessel sailed the superintendent made a final inspection, and found the apparatus in good condition and working well. (Record, 137.) No leakage of ammonia was perceptible, although the smallest leak would have manifested itself. (Record, 137.) At the time of sailing, the machine had been kept working for two or three days prior thereto (Record, 194), in order to bring down the temperature of the refrigerator box before receiving the meat, and had worked entirely well; and after the meat was put in on the night before sailing, was cooling down the box in a satisfactory manner. (Record, 182, 194.)

The Kilburn machines (like most of the ammonia freezing machines) work by the successive compression, condensation and expansion of ammonia gas. The condensation is effected by the cooling action of water taken from the sea or river and circulating around the series of coils into which the compressed gas has been forced. The cooling medium is brine, reduced in temperature by the sudden expansion of the compressed and condensed ammonia gas, and pumped through pipes arranged in the refrigerator box or room, returning after its circuit, as "incoming brine," to the refrigerator. The cooler the circulating water the more readily the gas is condensed and liquified, and the work of the machine is in direct proportion to the temperature of the sea or river water surrounding the coils in the condenser. A greater strain is placed upon the machine in warm weather than in cooler weather, and in the warm water of a river in summer than at sea; further, when the meat is placed in the refrigerating room, shortly before sailing, (especially if the meat has not been properly chilled), there is an immediate increase of temperature of at least twenty degrees, which also causes an increased strain upon the machinery. (Record, 40, 49.)

On July 4, 1894, the day on which the vessel sailed, the weather was excessively hot, and the temperature of the meat when placed by the shippers during the preceding night, in the ship's refrigerating room, was unusually high. (Record, 182, 194.) An especial strain was put upon the machinery just at about the time of sailing, and all the witnesses admitted that if a breakdown was to happen it would be likely to occur at that time or soon afterwards, rather than later in the voyage. (Record, 30, 46, 64, 92.) In two or three hours after leaving Philadelphia, the steamship at that time being near Reedy Island, the bonnet on the top of the condenser of the refrigerating machine began to leak, owing to the giving way of a joint; this required the stoppage of the machine until the next day in order to make repairs. On the following day the compression pump (having had put upon it the additional work of making up for the increased temperature caused by the preceding stoppage) broke down, certain rods and bolts being bent or broken. The necessary repairs were made at once, with great difficulty owing to the presence of the ammonia gas, care being taken meanwhile to keep down the temperature of the commercial box as far as possible, by attaching the ship's refrigerating machine used for the ship's stores. Owing to these accidents the temperature of the refrigerator box could not be reduced to the freezing point until after the lapse of several days. On arrival at Liverpool the meat was found to be more or less damaged and was sold at a loss.

Suit was brought in February, 1895, some eight months after the voyage in question, after the chief engineer and fourth engineer of the steamship "Southwark" had left the employment of the appellee.

The libellants and appellants proved the shipment

and bill of lading and also that the meat was found damaged upon its arrival at Liverpool, and closed.

The respondent and appellee proved the facts with respect to the character of the machine, its working, inspection, etc., before sailing, and the successive breakdowns as above set forth. It was further shown that the leak in the joint of the bonnet of the condenser which began the trouble was due, in the opinion of the witnesses, to the excessive working of the machine required by the heat of the atmosphere, water and meat on July 4th, the day of sailing (Record, 13, 20, 21, 49, 67); and that the subsequent breaking or bending of the rods and bolts was in all probability due to the increased pressure required to reduce the temperature after the first leakage and stoppage, (Record, 14) and to that extent directly resulted from the original trouble. No defect or flaw in the machine was apparent (Record, 181, 194.) It was also shown that the temperatures of the refrigerator box and brine, noted on the engineer's log of July 4th, were not abnormally high as asserted by libellants, and *were averages of four or more different observations*, two preceding and two following the leakage and stoppage, the earlier ones also being taken shortly after the introduction of the meat during the preceding night when a very high temperature was to be expected, especially where, as in this case, the meat had not been sufficiently chilled. (Record, 183, 195.)

The libellants and appellants called certain experts who, without reference to the time and manner of taking the temperature in the refrigerator log, and predicating their statements upon conditions existing at sea after the refrigerator box has cooled down, asserted that such temperatures were excessive, and that the machine was not working properly, but they admitted on cross-examination that the circumstances referred

to, viz., the fact that the temperatures were averges before and after the breakdown, and the heat of the weather and meat would modify their conclusions. (Record, 31, 47, 91.) They also suggested various causes for the trouble in the machinery, but these were merely conjectural, and all admitted that the refrigerating machinery might thus breakdown, without negligence on the part of anyone. (Record, 33, 44, 66, 92.)

Both the District Court, (McPherson, J.) and the Circuit Court of Appeals, (Acheson, Dallas and Gray, JJ.) held that the stipulation in the bill of lading freeing the shipowner from responsibility for damage caused by breakdown or injury to the refrigerator, even though arising from defects existing at or previous to the commencement of the voyage, cast upon the shippers the burden of proving negligence on the part of the ship, and that this they had failed to do.

The facts were concurrently found by the two lower Courts substantially as follows:

(1) That the vessel was fitted with refrigerating machinery of approved pattern which had been used for several years and had always worked satisfactorily. (Record, McPherson, J., p. 209.)

(2) That shortly before the voyage in question the machinery had been inspected by a competent official and was apparently in good order. (Record, McPherson, J., p. 209.)

(3) That the failure to reduce the temperature sufficiently was due to the several breakdowns that occurred. (Record, McPherson, J., p. 211.)

(4) That the rotting of the meat in question was not due to any condition of temperatures or of machinery when it was received or at the time of sailing but to the breakdowns which subsequently happened. (Record, Dallas, J., 213.)

(5) That there was no sufficient evidence of negligence on the part of the vessel, either in supplying suitable machinery or in failing to inspect properly or in improper management. (Record, McPherson, J., p. 210.)

ARGUMENT.

The lower courts have concurred in finding, as above stated, that the vessel was fitted with proper refrigerating machinery, duly inspected, (*i. e.*, there had been due diligence); that the rotting of the meat was due to the breakdowns of the refrigerating machinery after sailing and not to any condition of temperature or of the machinery at the time of sailing; and that there was no sufficient evidence of negligence on the part of the vessel.

The settled rule of this Court is, that the concurrent findings of two lower courts on questions of fact will not be disturbed.

Morewood v. *Enequist*, 23 How., 495.
The Marcellus, 1 Black., 417.
The Hypodame, 6 Wall., 223.
The Richmond, 104 U. S., 543.
Alexander v. *Machan*, 147 U. S., 72.
Handy v. *U. S.*, 143 U. S., 513.
Packer v. *Lighterage Co.*, 140 U. S., 360.
Rea v. *The Eclipse*, 135 U. S., 599.
The Gazelle, 128 U. S., 474.
The Maggie J. Smith v. *Walker*, 123 U. S., 349.
Act of April 16, 1875, C., 77.
The Carib Prince, 170 U. S., 658.

It is proper, therefore, to discuss first the questions of law applicable to the facts as found, and afterwards, (if the Court desires to hear discussion of them), the facts themselves.

The argument may be divided as follows:

FIRST—The obligation of the ship owner to the shipper as affected (I) by the bill of lading and special contract, placing the burden of proving negligence upon the shipper; (II) by the Harter Act, and (III) by the peculiar nature of the service to be performed.

SECOND—Under the concurrent finding of the two lower courts the shipper has failed to sustain the burden imposed upon him of proving affirmatively want of due diligence or negligence on the part of the ship, and such finding will not be disturbed; and

THIRD—The facts as to "due diligence" (furnishing proper machine and inspection), the inferences of negligence from the log-book temperatures, etc., and the cause of the accident.

FIRST.

THE LAW—The obligation of the ship owner to the shipper.

I.

As affected by the bill of lading and "dressed meat clause."

The bill of lading in the present case contains the following clause, known as the "dressed meat clause," printed in bold red type across the face:

> "It is expressly agreed that the goods shipped hereunder are absolutely at the risk of the owners in every respect, and that the carrier is responsible for no loss, delay or damage thereto however arising, including stowage and *all risks of breakdown or injury however caused, either to its refrigerator or*

its machinery, even though arising from defect existing at or previous to the commencement of the voyage; also that in case of the meat becoming, from any cause in the opinion of the master of the vessel, putrid, dangerous or offensive to the passengers or crew, it may be thrown overboard or otherwise disposed of, without liability to the carrier for consequent loss."

In addition to the "dressed meat clause," the bill of lading contained a clause exempting the ship from the consequences of damage "*by decay, putrefaction* * * * *or any loss or damage arising from the nature of the goods.*" The libel avers and it is an admitted fact in the case, that the meat covered by the bill of lading was spoiled and putrid. Clauses substantially similar to this "dressed meat clause" are found in the bills of lading of many transportation companies, transporting dressed meat by means of refrigerating compartments.

At the time of the shipment in the present case, (1894), the business of shipping beef by cold storage was comparatively recent. The risk of handling so perishable a commodity was very great. The liability of refrigerating machinery to break down or become impaired without visible cause or reason, led to the insertion of clauses of this character in the bills of lading. The clause was prominently printed, and it is not denied that the shipper was aware of it and agreed to it by accepting the bill of lading.

1. The validity of the exemptions.

It is not contended that the clause can be invoked by the ship owner to protect himself from his own or his servants' acts of negligence and want of care; but short of this the clause is valid; and if some of its terms exceed the limits permitted by law, their invalidity will not avoid the remainder.

In the case of The "*Prussia*," 93 Fed., 837, in the New York Circuit Court of Appeals, a very similar clause was under construction, and WALLACE, J., *Held* that such a clause (exempting the ship owner from responsibility for loss arising from defect or insufficiency either before or after shipment in any part of the refrigerating apparatus) must be given full effect.

And a motion for *certiorari* in this Court, in which the point was raised by the briefs, was denied.

The clause is unquestionably valid to relieve the ship owner from liability for loss arising from injury of its refrigerating machinery, due to defects existing at or previous to the commencement of the voyage or thereafter, to which the ship owners' negligence has not contributed. Some of its terms may exceed the exemptions permitted by law. But to give effect to so much of it as is not prohibited by the Harter Act, is not an attempt to make a contract for the parties, which they have not made themselves, but to sustain their very contract, so far as the policy of the law permits; it is not an effort to reform a contract, but to execute a contract; it is simply to apply a rule of construction with which this Court is very familiar.

In the case of *Savage* v. *Burnham*, 17 N. Y., 561, it was said:

> "In the nature of things, in reason, and above all in justice, it may and must be true that a deed, a will, or other instrument can in part be good although another part is void, because in contravention of positive law."

The same rule has been applied even to statutes, which were in part unconstitutional: *Regan* v. *Trust Co.*, 154 U. S., 362, 395; *Field* v. *Clark*, 143 U. S., 649.

This is in accordance with the well settled maxim that an instrument and all its clauses should be so construed *ut res magis valeat quam pereat.*

In *Hobbs* v. *McLean*, 117 U. S., 567 (p. 576), the Court says:

> "It is a rule of interpretation that where a contract is fairly open to two constructions, by one of which it would be lawful and the other unlawful, the former must be adopted."

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With regard to the exception against damage resulting from *putrefaction, etc.*, even in the absence of such a clause a carrier was exempt at common law, unless his own negligence could be shown to have contributed to or detrimentally assisted the decay. That such exemption is valid, has never been doubted and requires no citation of authority.

Hutchinson on Carriers, sec. 768 a.
Carver on Carriers, sec. 12.

2. The sufficiency of the exemptions to cover unfitness or defect in the refrigerating machinery existing at or prior to the commencement of the voyage.

The exception of the "dressed meat clause" is against "all risk of breakdown or injury however caused either to its refrigerator or its machinery even though arising from defect existing at *or previous to the commencement of the voyage.*" In other words, the ship owner is not to be responsible for defects or breakdown of machinery either before or after sailing, or for improper working due to such defects; and if (as will be hereafter discussed) there is in the case of such machinery as this, any implied warranty of fitness similar to the warranty of seaworthiness, such warranty has been modified or abrogated by the parties to the contract. No such question can here arise as to the intention of the parties, as was raised in the *Carib Prince*, 170 U. S., 655, as to whether the terms of the exemption covered defects existing prior

to sailing. Here the meaning is clear and beyond dispute—defects "previous to the commencement of the voyage" are expressly excepted. Such modification even of the strict and absolute warranty of technical "seaworthiness," (short of relieving the ship owner from his own or servants' negligence) is not forbidden.

In the "*Cargo Ex Laertes*," L. R., 12 Probate Div., 187, there was an exception against losses "from latent defects in boilers, machinery or any part of the vessel, in which steam is used, even existing at time of shipment, providing all reasonable means have been taken to secure efficiency." It was HELD that the exception constituted a limited warranty of seaworthiness which had been complied with by the ship owner.

BUTT, J., said:

> "I think the exception (above set out) in the third bill of lading, if it does not abrogate, at all events limits the warranty which the law would otherwise imply, that the ship is seaworthy at the beginning of the voyage."

This case was referred to as a pertinent illustration in the case of the *Carib Prince*, 170 U. S., 660.

Even in the case of the *Caledonia*, 157 U. S., 134, where the strict implied warranty of seaworthiness was upheld, the CHIEF JUSTICE intimated that such warranty might be superseded by a special agreement, saying:

> "In the Edwin I. Morrison, 153 U. S., 199, 210, the language of Mr. Justice Gray delivering the opinion of the Circuit Court in the present case was quoted with approval to this effect, 'In every contract for the carriage of goods by sea, *unless otherwise expressly stipulated* (italics ours) there is a warranty on the part of the ship owner that the ship is seaworthy at the time of beginning her voyage and not merely that he does not know her to be unseaworthy or that he has used his best efforts to make her seaworthy.'"

And in the *Carib Prince* (supra) Mr. Justice WHITE says in speaking of the rule laid down in the *Caledonia:*

> "The decision in the "Caledonia" was based not on the particular character of the defects there referred to, but on the general ground that unless there were express words to the contrary the language of the exempting clause would not be held to apply to defects whether patent or latent existing when the voyage was commenced. In other words, that where the owner desired the exemption to cover a condition of seaworthiness existing at the commencement of the voyage he must unequivocally so contract. An illustration of such contract was found in the "Laertes," 12 Prob. Div., 187, referred to in the opinion in the "Caledonia." In that case the bill of lading stipulated not merely against latent defects, but against all such defects existing at the time of the shipment."

Mr. Justice BROWN (dissenting on another ground), said:

> "To exempt a vessel from the consequences of such a defect (latent) is neither unreasonable nor unjust, and most of the modern bills of lading contain a stipulation to that effect."

(Citing *Cargo Ex. Laertes*, supra).

In the "*Prussia*" (supra), WALLACE, J., said (93 Fed. Rep., 840):

> "But it is competent for parties by express contract to modify the obligations which would otherwise devolve upon the carrier, including even that of providing a seaworthy vessel; and short of any modification which would exempt him from the consequences of his own misconduct or negligence, or those for whom he is responsible, such contracts though strictly construed against the carrier are given full effect."

Therefore, if it be true (as decided in England in the case of the *Maori King*, L. R., 2 Q B., 550) that the ship owner proposing to transport a cargo of frozen meat

impliedly stipulates with the shipper that the vessel is provided with reasonably fit apparatus for the purpose, such implied warranty of reasonable fitness is modified by the special contract in this case, at least to the extent of relieving the ship owner from all the consequences of defects and breakdowns prior to sailing, which are not due to his negligence or the negligence of those for whom he is responsible.

The warranty of seaworthiness, therefore, falls out of the case; and with it any inference of unseaworthiness arising from the occurrence of the accident soon after sailing. It is not important to determine whether the defect from which the breakdowns occurred, existed after the commencement of the voyage, as found by the Court below, or before,—the exemption covered both periods; The important question is, on whom does the burden rest with respect to negligence? Must the ship owner affirmatively clear himself of negligence, in order to avail himself of the exemption, or must the shipper prove negligence on the part of the ship owner, to remove him from its protection.

3. The effect of the exemptions as to burden of proof.

The order and burden of proof in cases where the ordinary liability of a carrier has been modified by a special contract are held by this Court in *Clark* v. *Barnwall*, 12 How., 272, to be as follows:

> (1) "Where goods are shipped and the usual bill of lading given, promising to deliver them in good order, the dangers of the seas excepted, and they are found to be damaged, the *onus probandi* is upon the owners of the vessel, to show that the injury was occasioned by one of the excepted causes.
>
> (2) But, although the injury may have been occasioned by one of the excepted causes, yet still

the owners of the vessel are responsible if the injury might have been avoided, by the exercise of reasonble skill and attention on the part of the persons employed in the conveyance of the goods. *But the onus probandi then becomes shifted upon the shipper to show the negligence.*" (Syllabus.)

(1) As to the first proposition, the lower Courts in this case concurred in finding that the injury to the meat was occasioned by a cause within the exceptions mentioned in the dressed meat clause.

McPherson, J., said (Record, 211):

> "No doubt the machinery for some reason or reasons did not do its work, and no doubt also its failure to reduce the temperature sufficiently was due to the several breakdowns. * * Unless negligence is proved, the cause or causes of the accident are not important; for the libellants' express contract relieved the carrier from liability for the consequences of any breakdown however caused."

Judge Dallas said (Record, 214) in speaking of the decision of the District Court:

> "It is evident, therefore, that the position which the appellant now takes was considered and was decided to be untenable because the rotting of the meat in question was not due to any condition of temperature, or of machinery which existed when it was received, or at the time of sailing, but to the breakdowns that subsequently happened."

And we do not understand that the appellants claim that the loss was due to anything else than defect or breakdown of the refrigerating machinery. The libel avers (Record, 2) that at the time the steamship sailed:

> "The refrigerating apparatus was out of repair (not 'out of order' as cited in appellants' brief) and was working badly, and during the said voyage was not repaired, so that it was not possible to reduce the temperature in the compartment where said meat was carried."

In their argument they speak of the machine as "not working properly," being in "unfit condition."

The only difference, therefore, between the lower Courts and the appellants on this point is as to the time when the defect existed—whether at the time of, or after sailing; and both are provided for specifically in the bill of lading.

(2) The second proposition that where it has been shown that the injury was occasioned by an excepted cause, the *onus probandi* is shifted upon the shipper, to show negligence, is a familiar one.

In England, the rule is stated, in *Carver on Carriers*, Section 78, as follows:

> "But if a loss apparently falls within an exception the burden of showing that the ship-owner is not entitled to the benefit of the exception on the ground of negligence is upon the person so contending."

To the same effect is *Hutchinson on Carriers*, Section 767.

And this Court has frequently recognized the principle.

In *Clark* v. *Barnwall*, et al., 12 How. 272, NELSON, J., says:

> "Now the evidence showing very satisfactorily that the damage to the goods was occasioned by the defect of the humidity and dampness, * * * which is one of the dangers and incidents to the seas for which the carrier is not liable, the burden lay upon the libellants to show that it might notwithstanding have been prevented by reasonable skill and diligence of those employed in the conveyance of the goods."

In *Transportation Co.* v. *Downer*, 11 Wall, 129, it was *Held* where a Transportation Company had showed that loss was occasioned by one of the dangers of lake

navigation, that "the burden of establishing such negligence and inattention (on the part of the company, who might have avoided the danger) rested with the plaintiff," and the Court below was reversed for refusing an instruction to the jury to this effect.

In the *Victory and the Plymothian*, 168 U. S. 410, it was *Held*, where a loss was occasioned by a collision excepted in the Bills of Lading that it rested with the libellants to defeat the operation of the exception by proof of such negligence as would justify a decree against the vessel if sued alone. Citing the case of *Clark* v. *Barnwall* and *Transportation Co.* v. *Downer*, supra, and the *City of Hartford and the Unit*, 97 U. S. 323, and the *Ludwig Holberg*, 157 U. S. 60. Frequent illustrations of the rule are found in the admiralty cases—amongst them:

In the *Powhatan*, 12 Fed., 876, there was an exception on a ship load of live cattle "not accountable for any damage or mortality from any cause." It was held per BLATCHFORD, J.:

> "The burden of proving negligence and of proving that the damage arose from the facts alleged to constitute negligence, is on the libellant. It is not established that there was any negligence anywhere except such as existed in confining live cattle in the between decks of an iron vessel, such as the "Powhatan" was in hot weather, in July. That was the act of the libellant. Negligence in the carrier is not to be presumed from the sickness and death of cattle under such circumstances."

In the *Timor*, 67 Fed., 356, a cargo of beans was shipped under a bill of lading containing exceptions of damage from vermin; the cargo was found damaged by rats. It was said per SHIPMAN, J. (U. S. C. C. of N. Y.):

> "It was not denied by the libellants that in view of the exceptions contained in the bills of lading, the burden of establishing this negligence

> rested upon them. * * * They had taken bills of lading which excepted the owners from liability for damage by vermin, and in our judgment failed to show that the loss was attributable to the neglect or failure of the officers of the vessel to exercise ordinary or reasonable precautions to rid the ship of the presence of this source of danger."

In the *Hindoostan*, 67 Fed., 794, there was an exception of deterioration of fresh roots or vegetables. It was *Held* PER CURIAM (U. S. C. C. of N. Y.), upon deterioration of a shipment of garlic, the burden of proof was upon the shipper to show that it might have been avoided by the exercise of reasonable skill and attention on the part of the steamship. It was further said that the proof should not rest on inference, but upon a fair preponderance.

In the *Lennox*, 90 Fed. 308, there was an exception of breakage. On landing a consignment of packages of firecrackers, most of the boxes were more or less broken. There was proof of good stowage, no shifting of cargo, but no definite cause of the injury was shown. It was *Held* per BROWN, J., that the shipper having failed to show by affirmative proof that the ship's negligence caused the damage, the ship was exempt under the exception. Said the Judge:

> "In such cases, therefore, the ship stands discharged unless there is a preponderance of proof convicting her of negligence. *If the cause of the injury is left in doubt, the ship stands excused for the reason that by virtue of the exception in the Bill of Lading the shipper in effect contracts that he will himself stand the risk of any loss arising from the cause named* * * * There is nothing that amounts to affirmative proof of negligence by the ship, and the ship therefore stands excused, because the risk of injury by breakage was assumed by the shipper and it has not been proved to have arisen through the ship's fault."

The shipper, therefore, must prove negligence conducive to the loss, and he must do it *not by leaving the question in doubt, or by theories from which negligence may be inferred or argued, but by affirmative and preponderating proof—such as is required for the proof of any other fact.*

Oil Co. v. *Torpedo Co.*, 190 Pa., 350.

In all these cases it has been argued, that the facts being peculiarly within the knowledge of the carrier or ship owner, it is unjust and unreasonable to place upon the shipper the burden of proving negligence; but this argument has not prevailed against the elementary proposition that a man is bound by his contract unless he can *show cause* in fact and law for avoiding the same.

Of course, where the loss is not shown to have been due to an excepted peril, the converse of the rule we have been considering is true, and the carrier takes the risk of explaining the cause of damage, and negativing the presumption of negligence arising from the condition of the goods when delivered. The ship is then liable unless it can show the exact cause of the accident from which the damage arose. Thus, in cases where the exception has been "perils of the sea," it has been held that the shipowner must bring himself within the exceptions by showing affirmatively that the vessel was in good condition and suitable for the voyage at its inception, otherwise the exception could not apply. Such a case was the *Edwin I. Morrison*, 153 U. S. 199, 211, where it was *Held* that the ship must show affirmatively the safety of a certain cap and plate, and that they were carried away by extraordinary contingencies or at least by such as could not reasonably have been expected, before the exception of "perils of the sea" would apply. To the same effect is the *Phœnicia*, 90 Fed. 116, and the other cases of sea perils.

The question is not one of reasonableness or public policy, but of evidence; as put by BROWN, J., in the *Lennox* (supra), if the cause of the injury is not due to negligence "the ship stands excused, for the reason that by virtue of the exception in the bill of lading the shipper in effect contracts that he will himself stand the risk of any loss arising from the cause named." And if he alleges negligence, which he has a right to do under the American law governing common carriers by sea, he must prove it. Therefore, under the rule of evidence that we have been considering, the exemption of the "dressed meat clause" is in effect, at least, this—the ship shall not be responsible for loss occurring by reason of defects or breakdowns of the machinery before or after sailing unless the shipper shall prove that negligence of the ship or its servants conduced to or permitted the loss. Why should there be a difference in the rule, in the case of negligence in respect to the structure of the machinery or the ship occurring *prior* to the sailing, *i. e.*, in respect to "seaworthiness": None of the authorities or decisions hint at such a distinction, and no greater burden, but rather a less one is imposed upon shippers with respect to proving acts of negligence occurring before sailing than those occurring at sea.

II.

As affected by the Harter Act.

The Act of February 13, 1893, C. 105, 27th Stat. 445, has been strictly construed by this Court. It has been HELD that the settled principles of law and evidence are not changed or restricted by the operation of the Act further than its express terms require.

The *Irrawaddy*, 171 U. S., 187.

The *Carib Prince*. (Supra.)

Said Mr. Justice SHIRAS in the *Irrawaddy*, supra:

> "Upon the whole we think that in determining the effect of this statute in restricting the operation of general and well settled principles, our proper course is to treat those principles as still existing, and to limit the relief from their operation, afforded by the statute, to that called for by the language itself of the statute."

It is argued that both the second and third sections of this Act affect the rule of evidence above discussed as to the burden of proving or disproving negligence.

1. Section 2 reads as follows:

> "That it shall not be lawful for any vessel * * her owner, master, etc., to insert in any bill of lading or shipping document any covenant or agreement whereby the obligations of the owner or owners of said vessel to exercise due diligence (to) properly equip, man, provision and outfit said vessel and to make said vessel seaworthy and capable of performing her intended voyage * * * shall in anywise be lessened, weakened or avoided."

(1) It imposes no new obligation upon the ship owner, it merely restricts his freedom of contract by forbidding exemption where negligence is shown. Any stipulation short of relieving the ship owner from liability for negligence would be valid; in this respect the section is but declaratory of the law as defined by the Federal Courts of this country before the passage of the Act. It does not forbid, but by implication permits modification of the strict warranty of seaworthiness:

In Carver on Carriers by Sea, (3d ed.) section 103c, in speaking of the Harter Act, it is said:

> "On the other hand there seems to be no prohibition of clauses framed to relieve a ship owner from the absolute warranty of the seaworthiness of the ship on sailing, which under United States law as well as English law is implied in the absence of

express agreement. On the contrary, the terms of section 2 of the Act seem implicitly to sanction such clauses, provided they still leave on the ship owner an obligation of due diligence to make the ship fit in hull and equipment and to have the cargo properly stowed. Thus an exception of latent defects in the hull or machinery has been held to be valid, and doubtless the clause in common use, that the ship owner will not be responsible for any want of seaworthiness of the ship on sailing and not resulting from want of due diligence to make her seaworthy, would be treated as effectual."

The Act does not in terms, or by necessary implication, affect the rule of evidence which requires negligence to be proved by the shipper where the loss has been shown to be within an exception; and under the strict construction given to the Act by this Court, it will not be inferred that the rule of evidence was intended to be changed.

As already shown, the effect of the exemption in the present case (as restricted by the American rule as to carriers) is that there shall be no liability for defects, or improper working due thereto, or for breakdowns, however caused, not due to the negligence of the ship owner, —which however the shipper must establish. Such stipulation is not repugnant to the prohibition of the second section of the Harter Act because it does not in any respect lessen the legal obligations of the owner to properly equip and make seaworthy his vessel; it but places upon the shipper the duty of proving the default or failure of the ship owner. As shown above, the well established law of evidence in cases of common carriers permits this burden to be imposed and assumed. No argument of hardship and of the facts being exclusively within the knowledge of the carrier, has availed to change the rule. The higher law that a man must abide by his contracts unless he can *show* a reason for

avoiding them, has prevailed. No language of section 2 of the Harter Act expressly modifies this general and well settled principle, and no intention on the part of Congress to modify it will be inferred. In the words of Justice SHIRAS, (supra.):

> "Our proper course is to treat those principles as still existing, and to limit the relief from their operation, afforded by the statute, to that called for by the language itself of the statute."

(2) In addition to the foregoing reason, there is another reason why the exemption of the bill of lading cannot be held prohibited under Section 2 of the Harter Act.

In the *Prussia*, 93 Fed. 840, in the Court of Appeals, Judge WALLACE said:

> "It is insisted for the appellant that the clause is in violation of Section 2 of the Harter Act. In our opinion, the provisions of this section only prohibit contracts relaxing the obligation of carriers to exercise due diligence in respect to providing seaworthy vessels, and in respect to the handling and storage of cargoes. The warranty of seaworthiness is, that a vessel is competent to resist the ordinary action of the sea during the voyage, without damage or loss of cargo (*Dupont De Nemours* v. *Vance*, 19 How., 162)—in other words, in such a state as to repair, equipment and crew, as to be able to encounter the ordinary perils of the adventure (*Gibson* v. *Small*, 4 H. L. Cas., 390). The carrier is not an insurer against damage proceeding 'from an intrinsic principle of decay, naturally inherent in the commodity itself, whether active in every situation, or only in the confinement and closeness of the ship' (*Clark* v. *Barnwell*, 12 How., 272); and the implied understanding created by the proposal to transport and deliver a commodity, which the shipper and carrier know cannot be practically performed unless the carrier is provided with the

> proper instrumentalities in customary use for its preservation, is not a warranty of seaworthiness. Section 2 of the Harter Act is the complement of section 3, which excuses the ship owner if he has exercised due diligence to make the vessel 'in all respects seaworthy and properly manned, equipped and supplied.' The two sections are to be read together, both being intended to enforce the same rule of diligence in respect to the same subject matter."

In other words, the subject-matter of both Section 2 and Section 3 of the Harter Act is technical "seaworthiness," i. e., the fitness or ability of the vessel "to resist the ordinary action of the sea during the voyage, without damage or loss of cargo;" the ability "to encounter the ordinary perils of the adventure." And the agreement or understanding that the machinery necessary to preserve commodities, which by their own intrinsic principle of decay would otherwise be destroyed on the voyage, shall be fit and proper, as held in the *Maori King* (Supra) (following *Queensland Nat. Bank* v. *P. & O. Steam Nav. Co.* (1898) 1 Q. B. 567), is *not a warranty of seaworthiness.* We submit that this position is well taken; and for this reason also, Section 2 of the Harter Act has no application to the present case, and cannot be successfully invoked by the appellants. The effect upon this whole case of the peculiar service to be performed by the shipowner, viz., the preservation by artificial means of a commodity which by reason of its own inherent vice would otherwise inevitably be destroyed upon the voyage, will be considered under the next point.

2. Section 3 of the Harter Act is said to place upon the shipowner the preliminary duty of showing that he has exercised due diligence to make his vessel seaworthy, etc. But this is only in case he shall be claiming exemption under the exceptions mentioned

in the section especially, that is, "from faults or errors in navigation, or in the management of said vessel." The ship owner is not so claiming here; he is claiming under a contract not prohibited by the Harter Act, and outside of its operation. No benefit under the statute is claimed, and the condition is inapplicable.

3. Moreover, if the Act has application to this case, which we deny, the two lower Courts have found as a fact that the ship owner exercised "due diligence."

III.

The obligation of the ship owner to the shipper as affected by the peculiar nature of the service to be performed.

1. The preservation of meat during a voyage, by the creation of an artificial atmosphere, is an undertaking apart from the duty of a common carrier by sea, and the ship owner's duty therein is that of a cold storage warehouseman.

In *Wheeler Modern Law Carriers*, 98:

> "So in the case of perishable goods, such as fruit and hides, he does not answer for their decay or deterioration; nor for the heating or weeviling of grain; nor for fermentation, acidity, or effervescence in fluids, when these changes are the results of ordinary processes going on in the things themselves, without the aid of causes introduced by the shipowner * * *

Hutchinson on Carriers, Sec. 768 a:

> "Thus where live stock or perishable fruit is carried, it would not be enough for the shipper to show that the live stock was dead, or that the fruit was decayed when delivered, and nothing more. For the death or decay may as well have been caused by some inherent disease or defect as by any negligence of the carrier. The shipper must also show some 'injurious accident' or some injury to

the thing shipped, which could not have been the result of its inherent nature or defects, or which stimulated or accelerated the injury arising out of such inherent nature or defects. Slight evidence of the carriers' negligence however has been held sufficient."

Carver on Carriers, Section 12:

"A further exception at common law which was not expressly stated in the earlier cases, but is well established, is that a carrier is not responsible for a loss or damage which has resulted from an inherent quality or defect of the thing carried."

Wharton on Negligence, Section 563.

In the case of the "*Prussia*," supra, decided in the District Court by THOMAS, D. J., 88 Fed., 531, it is said:

"If the damage proceeds 'from any intrinsic principle of decay naturally inherent in the commodity itself, whether active in every situation, or only in the confinement and closeness of the ship, the merchant must bear the loss as well as pay the freight,' unless the masters and owners are in fault." (Citing many cases.)

Hence, if the carrier by his negligence introduces or permits the existence of adventitious causes whereby the action of the inherent quality is detrimentally promoted, the carrier is liable, but continues Judge THOMAS, referring to the shipment of dressed beef:

"It may very well be that whatever has a tendency to be injured by heat or by cold should be assigned to a place, in the distribution of the cargo, where its disposition would not be excited; but this would not require the carrier to create an artificial climate adapted to the preservation of goods, and to warrant that the heat or cold thus furnished should be unvarying and efficient. Such an obligation upon a common carrier never existed, and there is no judicial suggestion as to its propriety. Assume,

then, that a carrier undertakes to add the business of cold storage to his regular occupation. Here is a duty not imposed by law, a duty totally unknown to the peculiar obligations of common carriers. The principle which imposes the obligation of an insurer upon a common carrier has no relation to it. Dressed meat has a tendency to decay. It is the primary duty of the shipper to make such provisions as shall arrest such tendency, or take the risk of the tendency. It is the primary duty of a common carrier, to the extent above stated, to introduce or to permit the introduction of no agency which will excite or develop such tendency. Aside from this he takes no risk. If the carrier undertakes the duty of the shipper, and thereby relieves the latter, the obligation must rest entirely upon contract, as the obligation of a common carrier does not require him to do so. This contract is quite collateral to the obligation of a common carrier, and hence may impose such full or qualified obligation upon the bailee as the parties to it determine. In the present case, the business of refrigerating meat is superadded by the carrier."

Because of the peculiar nature of the cargo, and the necessity, not merely of protecting it from adventitious causes, but also of creating artificial conditions unknown to nature, for its preservation, all of the well known principles regulating the relation of common carrier and shipper are not applicable. It is not a case of cleansing and disinfecting a ship to restore a normal condition of healthfulness for the reception of cattle, as in *Tattersall* v. *National Steamship Company*, L. R. 12, Q. B. Div. 297, nor of the construction of a bullion room, reasonably fit to resist thieves, a matter of equipment, provided by a single effort and not requiring continuous operation for its maintenance, as in *Queensland National Bank* v. *Peninsular and Oriental Steam Navigation Co.* (1898) 1 Q. B. 567, nor of the distribution of a cargo susceptible to

injury by heat, or cold, or lack of ventilation, in such manner as not to excite such disposition to decay,—but it is the continuous maintenance of an artificial climate to arrest the natural tendency of dressed meat to deteriorate. It is the addition, as Judge THOMAS says, of the business of cold storage, to the occupation of a carrier. The duty is not imposed by law,—it was totally unknown in the former history of carriers by sea. It has no relation in principle to the obligations of a common carrier. It is simply a new and collateral undertaking. The analogy of technical seaworthiness and strict warranty imposed upon ship owners in that regard cannot and should not be applied to the refrigerating machinery of a transporter of dressed meat. His contract is the source of his obligation, and his liabilities, therefore, may be qualified as fully as the parties to it may determine. At the very most he is no more than a cold storage warehouseman, and his liability should be limited to the liability of those engaged in the similar occupation on land.

A somewhat similar, but not strictly analogous line of cases, are those relating to the transportation of live animals. The analogy here is not perfect because in the latter case no artificial machinery is required to keep the animals alive. Proper accommodation and ventilation are all that is necessary, yet even here the cases have held that the ordinary obligations of a common carrier are relaxed and modified.

In *Myrick* v. *Michigan Central*, 107 U. S., 102, this Court held that "a railroad company is not a common carrier of live animals in the same sense that it is a carrier of goods, its responsibilities being in many respects different."

To the same effect, among others, are:

Michigan Sou. Ind. R.R. v. *McDonough*, 21 Mich.,165.

Cragin v. *New York Cent. R. R. Co.*, 51 N. Y., 61.

S. P. Carr v. *Lancashire & Yorkshire R. Co.*, 7 Excheq., 708.

Indeed this Court has held that a carrier, by special agreement, becomes with reference to the particular transaction, an ordinary bailee and carrier for hire.

York County v. *Central R. R.*, 3 Wall., 107, 112.

And in *N. J. Steam Nav. Co.* v. *Merchants' Bank*, 6 How., 344, 382 Justice NELSON said:

> "The owner, by entering into the contract, virtually agrees that in respect to the particular transaction, the carrier is not to be regarded as in the exercise of his public employment, but as a private person, who incurs no responsibility beyond that of an ordinary bailee for hire, and answerable only for misconduct or negligence.

2. A cold storage warehouseman, *i. e.*, a bailee for hire, may by contract stipulate for exemption from liability, as in this case from a breakdown of his plant; at least where no negligence is shown. And he may thereby place upon the bailor the burden of proving negligence.

Tausig v. *Bode & Haslett*, 54 L. R. A., 774 (Cal.)

Holt Co. v. *Jordan Company*, 25 Ind. App., 314.

Farnham v. *Camden & Amboy R. Co.*, 55 Pa., 53.

Gray v. *Bates*, 99 Mass., 263.

Marsh v. *Horne*, 5 B. & C., 462.

Cochran v. *Dinsmore*, 49 N. Y., 249.

Story on Bailments, Sec. 278.

SECOND.

Under the concurrent finding of the two lower courts, the shipper has failed to sustain the burden imposed upon him of proving affirmatively want of due diligence or negligence on the part of the ship; and such finding will not be disturbed.

1. The finding of facts of the lower courts, as already stated, was as follows (using the language of the judges):

> (1) That the vessel was fitted with refrigerating machinery of approved pattern, which had been used for several years and had always worked satisfactorily. (Record, McPherson, J., p. 209.)
>
> (2) That shortly before the voyage in question the machinery had been inspected by a competent official, and was apparently in good order. (Record, McPherson, J., p. 209.)
>
> (3) That the failure to reduce the temperature sufficiently was due to the several breakdowns that occurred. (Record, McPherson, J., p. 211.)
>
> (4) That the rotting of the meat in question was not due to any condition of temperature or of machinery when it was received or at the time of sailing, but to the breakdowns which subsequently happened. (Dallas, J., p. 213.)
>
> (5) That there was no sufficient evidence of negligence on the part of the vessel either in supplying unsuitable machinery or in failing to inspect properly or in improper management. (Record, McPherson, J., p. 211.)

2. These findings of fact by the two lower courts will not be disturbed in this court unless obviously erroneous. (See the cases cited, supra, on page 7.)

The shipowner in the present case has stipulated in the bill of lading against damage caused by a breakdown or injury of its refrigerating machinery, even though arising from defects existing at or previous to the commencement of the voyage. The stipulation is lawful as already shown; its effect upon the relation of shipowner and shipper is to relieve the shipowner from any warranty of the initial fitness of his refrigerating machinery, and from all liability for injury resulting from a breakdown or defective working of the cold storage plant, unless the negligence of the shipowner is shown to have contributed to the injury, and his benefit of the exemption, therefore, to have been forfeited.

The two lower courts after a careful review of the evidence have found that the libellants have failed to show such negligence.

If as a matter of law the burden was upon the appellants and they have failed to sustain it, and if the findings of fact of the two lower courts will not be disturbed, this appeal must fall.

—

But an examination of the evidence shows further that not only did the libellants fail to prove negligence on the part of the owners of the ship, *but it appears that the owners exercised due diligence* in providing for this particular voyage cold storage facilities adequate for the safe carriage of frozen meat, and that they fulfilled, therefore, their whole obligation to the shipper.

THIRD.

THE FACTS—The exercise of due diligence, (providing fit machine and inspection), the inferences of negligence from the log-book temperatures, etc., the cause of the accident.

I.

The ship owner exercised due diligence with respect to equipping the vessel with proper refrigerating machinery.

The vessel was equipped with refrigerating machinery of well known and approved type and efficient for the purpose for which it was used.

It was a Kilburn-Refrigerating Machine, (R., 113); a type of machine frequently used in trans-Atlantic service for the cooling of meat boxes, (R., 113, 154, etc.), well known among refrigerating experts, as testified by the appellants' own witnesses, (R., 30, 91), and generally regarded as good for cold storage purposes, especially for cold storage at sea. (R., 71.)

This particular machine had been adequately tested before installation in the "Southwark," and had been found to work perfectly.

It was built for the "Alaska" (R., 113), where it did service for four or five years; and in the latter part of 1893, about seven months before the accident, it was transferred to the "Southwark," having first been thoroughly overhauled by the makers, (R., 157.)

The installation in the "Southwark" was made by competent workmen of the English branch of the J. K. Kilburn Company (R., 113, 123). Subsequently A. Gray Kilburn carefully examined it, and found nothing wrong in its structure or installation. (R., 134.)

This was a very few months prior to the voyage in question.

The work of the machine on the "Southwark" previous to the voyage in July, 1894, had been completely satisfactory.

Gilbert Paul, the chief engineer says, (R., 183):

> "The machinery was all right, both during the preceding voyages and during those subsequent to the one in question."

Shinn, the refrigerating engineer, says (R., 195) that during the preceding voyages:

> "The condition of the machinery had always been good," and was the same on the subsequent voyages.

Haverfield, second engineer (R., 162), says:

> Q. "Had there been any trouble the voyage preceding this one?
>
> A. No, sir; we had no trouble with it."

Aldcraft, third engineer (R., 173):

> Q. "Had you any trouble with the prior voyages?
>
> A. No, sir; nothing particularly."

And he states that the machine worked well during the next voyage, which was his last one with the steamship.

It was frequently inspected, and the ordinary repairs and overhauling were made. The chief engineer says (R., 103) of the preceding voyages:

> "There was just the usual overhaul which takes place at the end of every voyage when the machinery has been used."

Subsequent to the accident during the next and succeeding voyages the machine worked well (R., 183,

195). In May, 1895, some ten months later, the machine was transferred to the "Rhynland," where it now remains and from which the reports are very favorable.

McKernan, superintendent of the repair shop (R. 138), says:

"I know of the reports made of the machine after it went on the 'Rhynland.'"

Q. "Were they good or favorable or how?

(Objected to.)

A. "Oh yes, very favorable.

Q. "Had it been overhauled by you or your shop, on the 'Southwark' before it was transferred?

A. "No, sir."

Cross-examined.

"By Mr. Cheyney:

XQ. "Did I understand you to say that this refrigerating plant was not overhauled on the 'Southwark' from July 5, 1894, up to the time it was transferred to the 'Rhynland?'

A. No more than what would be necessary in any event on the ship coming in. There may have been little pipe joints leaking or the brine pump or the circulation pump or the engine brasses may have worn slack, no more than any ordinary engine would take under ordinary circumstances."

It cannot be doubted from all this uncontradicted evidence that a proper and efficient machine was provided for the transportation of the meat.

II.

The machinery had been duly inspected.

Immediately before sailing there had been an inspection of the whole refrigerating plant, and the machine was found to be in good working order when the vessel left the dock.

In 1894, and for many years before, The International Navigation Company maintained a repair shop on their wharves (R., 142). Its superintendent, *McKernan*, as well as the superintending engineer of The Navigation Company, *Doran*, was charged with the duty of going on board a vessel after she arrived in port, to inspect her machinery, etc., including the refrigerating plant, and of making needed repairs.

McKernan, superintendent of the repair shops (R., 141, 142), says:

"XQ. Consequently it is not your business to make an examination of the vessel to see whether or not she requires any repairs or not?

"A. It was my business at that time.

* * * * *

"XQ. And it was not your duty when a vessel arrived in port or after she arrived in port, to go on board and see whether she required repairs or not; was it?

"A. Yes, sir; it was.

* * * * *

"XQ. Do I understand that you would make repairs without regard to the instructions of the chief engineer?

"A. I would make repairs if I saw anything wrong; I would report to *Mr. Doran*, and with his sanction make those repairs."

* * * * *

(R., 145.)

"It was my business to go down in the ship as soon as she arrived * * * and see if there were any repairs to be done or reported, * * * to examine for myself to see that everything was all right and the ship to be put in good condition before going to sea again. * * * That was on the day of arrival; of course on the second day when the engine room was cooler and you could get a better, more comfortable

idea of what was required, go round and make a rigid examination of everything. * * * Then the repairs were carried on. Then on the day of sailing it was my business to go round and see that everything was all right and the machinery in good working order and everything in a good seaworthy condition. * * * I include the whole of the machinery on the ship; that is, the main engines, and boiler and refrigerating plant, electric lighting plant, and all the auxiliary machinery of the ship."

* * * * *

"Q. When the "Southwark" was about sailing prior to the 5th of July, 1894 (July 4th—see p. 146), *had you or had you not made such an inspection of her as you have stated?*

"A. *Yes, sir.* I think it was on the 4th of July she sailed."

It was *McKernan's* specific duty to make this inspection of the refrigerating plant, with the rest of the ship's machinery, whether or not a further inspection was made by *Doran.* (R., 142.) If it were possible, an examination was made by *Doran* himself, but in his absence, or illness, or attention to other business, this was omitted. (R., 148.) In the present instance he was in Europe. (R., 152.) There is of course no evidence of an inspection by him. But proper provision existed for full inspection in his absence, and there is abundant testimony that this duty was thoroughly performed.

When the ship arrived in port (R., 145), *McKernan* went down into the engine room, and made an examination of the whole of the machinery. On the following day, the room being cooler, he made *a rigid examination*, not by deputy, but *in person* (R., 145).

"Q. Was that a personal inspection or by deputy?

"A. It was personal."

In consequence of this examination certain slight repairs were made to the refrigerating machinery.

(R., 141.)

"XQ. I wish you would tell me particularly what particular examination you made of the refrigerating plant on the 'Southwark' before she left Philadelphia, July 4, 1894.

"A. Well, I speak from memory; I think we did a little work to the brine pump; we had a few pipe fittings, connections or so, and I think we overhauled the circulating pump, but the repairs were very slight."

The inspection which resulted in these repairs was not a matter of mere observation of machinery in motion to determine its sufficiency by the manner of its working, but a rigid examination of machinery at rest. The difference is pointed out by the witness when he was asked (R., 137) as to the *later* inspection immediately before the vessel left the dock, "How long before the sailing had you inspected it?" "Do you mean from the outside?" was his distinguishing answer—distinguishing the character of the examination made while preparing for the voyage, and the later inspection just before sailing, "to see that everything was all right and the machinery in good working order."

This final inspection was made half an hour before the vessel sailed. The witness says (R., 137, 146):

"Q. Did you inspect the refrigerating machine on that occasion before she sailed?

"A. Yes, sir."

* * * * *

"Q. How long before the sailing had you inspected it?

"A. Do you mean from the outside?

"Q. Yes.

"A. About half an hour before she sailed. I left the refrigerating room about half an hour before the ship sailed."

As to the results of this inspection, he testifies:

(R., 146.) "Everything was right when I left the engine room."

* * * * *

Q. What was the condition of the refrigerating machinery when you last saw it?

A. In a very satisfactory condition. * *

Q. Was or was it not possible to detect a defect or leak in that machinery when it happened?

A. It would have been impossible for a leak of any moment to be there without anybody knowing it, because the slightest leak would have driven a man out of the engine room, a pin hole or a hole the size of a pin's point."

* * * * *

(R., 137.)

Q. "Was there any leak then in the bonnet?

A. No, sir.

Q. Would you have known or could you have known of it if there had been?

A. Yes, sir.

Q. How?

A. By the smell.

Q. Was there anything apparently wrong with the pump or piston?

A. Nothing at all.

Q. Was it working when she left the dock?

A. It was working when she left the dock."

Paul, the chief engineer, testifies to the same effect. (R., 182).

Q. "How had the machinery been working prior to leaving the dock at Philadelphia, say for twenty-four hours or forty-eight hours, and what was the condition of the machinery at the time the steamer left the dock?

A. The machinery was working all right *and was cooling the box down all right.* The machinery was all right.

Shinn, the refrigerating engineer (R., 194):

Q. "How had the machinery been working prior to leaving the dock at Philadelphia, say for twenty-four hours or forty-eight hours, and what was the condition of the machinery at the time the steamer left the dock?

A. The engines had worked well. *We were reducing the temperature for fifty or sixty hours.* As you reduce the temperature the work is easier for the machine and you can afford to slow the machine down. The machinery was in good order when we left the dock."

Aldcraft, third engineer (R., 178) says:

Q. "Had there been any trouble in the running of the machine from the time it was started here up to the time the leak first began?

A. No, sir; not the slightest."

By Mr. CHEYNEY:

"Q. How do you know that—there had been no trouble reported?

A. Nothing reported and anything that occurs like that is reported.

Q. Do you see the machine from where you are working—is the machine in view?

A. It is working in your view all the time."

The appellant has overlooked much of the testimony with respect to *McKernan's* duty as to the inspection of ships, and as to the manner in which that duty was performed, in general, and in this particular instance. The inspection of the refrigerating plant was not superficial observation merely; nor a reliance only upon external appearances; nor investigation by the sense of smell solely; in an effort to discover any actual break, without any examination of any liability to break.

The evidence shows, (R., 145, 146) inspection upon arrival in port, a rigid examination on the day following, when the machinery and the engine room had cooled

down sufficiently to permit an examination in detail, and a further inspection, after repairs had been made, of the operation of the overhauled machinery, before the vessel left the dock. It was made by an engineer of twenty or twenty-five years experience (R., 136), who was perfectly familiar with refrigerating machinery, and the business of cold storage at sea. Their character and structure he knew, and he had overhauled them and repaired them for years. (R., 136). It was his duty to make this inspection and examination (R., 145), and on the three occasions on which he testifies he was in the engine room, he was there in the performance of that duty. (R., 145). He made, it is testified, personally, a rigid examination, (R., 145) not a mere superficial observation of the plant; and the repairs undertaken in consequence, the pipe fittings, the connections, and the overhauling of the circulating pump, bear him out. When his repairs were completed, he joined up his engines, and observed the machine in operation,—necessarily the final test of the fitness of any sort of machinery. And the results were satisfactory. The engine was working properly, as far as its mechanical operation was concerned. (R., 138, 161, 172.) There was no defect or leak in the bonnet. (R., 146.) "It would have been impossible for a leak of a moment to be there without anybody knowing it, because the slightest leak would have driven a man out of the engine room." The pump and piston were working properly. (R., 137.) And the machine was working efficiently as to its results. (R., 182, 194, 164.) It "was cooling the box down all right."

There is no obligation upon a ship owner to take his engines apart, after every voyage, where no trouble whatever has occurred to suggest the existence of some defect. To insist upon such a degree of care is wholly

unreasonable. To require such an overhauling, after every second voyage is hardly less unreasonable. This machine had been installed, after most thorough overhauling, only seven months before the accident, and had been in use on the "Southwark" on only two voyages previous to July, 1894, (R., 122); on each of which it had worked with complete satisfaction. Of the half dozen possible causes of the trouble, not one of them was to have been anticipated within such a short time, in the absence of any previous indication that something was wrong with the machine. And in the absence of such indications no more was required of the ship owner in this case than a rigid examination of the refrigerating plant at rest, the necessary repairing after such investigation, and careful observation of its operation, upon their completion; all of which he made. The reasonable test of the fitness of machinery, of high quality, recently installed, and continuously satisfactory, must be the manner of its working. There are no other known tests, as in the case of a port hole, the cause of the injury in the *Phœnicia*, 90 Fed., 117, or a bilge pump cap, *The Edwin I. Morrison*, 153 U. S., 199, or a plate, *The Flamborough*, 69 Fed., 470, or a figure head, *The Aggi*, 93 Fed., 484, or a rivet, *The Sandfield*, 92 Fed., 663, or any other immobile part of the ship. These are not only readily accessible, but the stresses and strains to which they are subject are easily estimated, the nature of possible defects perfectly understood, and sufficient tests at once apparent. Apart from the manner of its working, there is no test for machinery, except its overhaul. And the degree of overhaul the ship owner must make certainly varies with the circumstances.

It may be necessary, at infinite trouble, great cost and tedious delay, to take the entire construction apart—

to take out and clean every pipe, to unbox every cylinder, to separate every connection of the great maze of coils and pipes and fittings in the engine-room of every large steamer—under some circumstances. But certainly not on setting out for the third voyage after some such general overhauling, with a machine, working previously with complete satisfaction, after rigid examination, and as she left the dock bringing down the temperature altogether normally. The chief engineer and the refrigerating engineer, both of whom testify that the machinery was cooling the box down all right (R. 182, 194), were perfectly familiar with the temperatures and pressures of the refrigerating plant (R. 181, 193). The refrigerating engineer made the observations. They testify (R. 188, 200) there was nothing abnormal about them, under the circumstances of this particular voyage, and, as will be shown hereafter, they were justified in that conclusion. There was nothing in the previous operation, or the immediate operation of the refrigerating plant to charge the shipowner with any higher duty of inspection and examination than he actually performed.

III.

The inference from the temperatures of the log-book.

The principal argument of the libellants and appellants on the facts is, that the temperatures of the commercial room and brine as recorded in the log-book, show that the refrigerating apparatus was in an unfit condition when the meat was received and at the commencement of the voyage.

It is assumed by the appellants that the temperatures of the brine and of the commercial room entered on the log-book on July 4th, the day of sailing, are the temperatures *for the day previous*, the day of the loading

of the meat; and it is argued upon that assumption that neither the brine nor the room were properly chilled for the reception of the meat; and that the receiving of meat for shipment under such conditions constituted negligence.

The assumption is not only without the slightest warrant by the evidence, but it cannot be sustained by any logical inference from the actual facts.

1. *The direct evidence is against this assumption.*

The entries upon the log-book are the records of observations made on the day of their entry. They represent, *Gilbert Paul* testifies (R. 181), "an *average* of four observations taken each day of twenty-four hours, * * * taken at the same time each day and night by the refrigerating engineer *Shinn*," and *Shinn* testifies (R. 193), "The entries represent an average of four observations taken each day. My watches morning and afternoon were from 2 A. M. to 8 A. M. and from 2 P. M. to 8 P. M., and I used to take two observations in each watch, one as near the beginning of the watch as I could. The others were taken by the man who relieved me, sometimes in the first hour after the commencement of his watch." The entry on July 4th was an average of a number of observations made by *Shinn* in accordance with his custom, after coming on duty at 2 A. M., and again at 2 P. M., and by the man who relieved him at the end of each six hours' watch.

Records are not usually kept (R. 202), nor in this instance were they kept, of temperatures prior to the day of sailing. The meat was received during the night of July 3rd, not on July 4th, and the *only evidence of the temperature of the room or of the brine at that time* is the testimony of a number of the respondent's witnesses that the box was cooling down all right (R. 182), though by reason of the intense heat it did not come down quite as low as usual (R. 164).

For fifty or sixty hours the machine had been at work reducing the temperature (R. 194), and during that time the machine had been working well (R. 182, 194). This statement of its efficiency was made by the refrigerating engineer, whose duty included the observation of the temperatures (R. 199). *Shinn*, the Refrigerating Engineer, says (R. 199, 201):

> "A. I took the temperature and calculated the averages and the chief engineer entered it in the log.
>
> * * * * *
>
> "A. We took the temperature as soon as we started cooling down. We had no regular time for taking it afterwards, and would take it from time to time afterwards to know how we were going on. We would know when the beef would be expected down, and would want to know what state the room would be in when it arrived."

And his statement must be taken to be not merely a statement of the mechanical operation of his engines, but an opinion of the general working of the whole refrigerating plant under his care, including the temperatures produced.

The appellee therefore denies that the temperature of the commercial room when the meat was received was, as asserted, 42 degrees, about 15 degrees higher than the proper temperature for introducing dressed meat. On the contrary, the evidence is explicit (R., 164), that the room before loading came down almost to the usual temperature, that is 25 degrees. (R., 34, 40.)

2. *Nor is there any logical inference* from the log entries of July 4th that the temperatures of the brine and of the commercial room, before the meat was put in were abnormally high, or that the refrigerating machine afterwards, and up to the time of sailing, had been working improperly.

The log-book figures on July 4th are:

Temperature of the commercial box, 42 degrees
Temperature of incoming brine, 40 "
Pressure on refrigerator gauge, 40 lbs.
Pressure on condenser gauge, 210 "

These temperatures represent *an average* of at least four observations, an observation having been taken in each of the four watches, into which the refrigerating engineer's day was divided (R., 193), the average calculated by *Shinn*, and the entry made in the log by the chief engineer. (R., 199.) These watches were of six hours, and began at 2 o'clock in the morning; and the temperatures were taken about the beginning of each watch. (R., 193.) So the log-book entries are averages of four observations, one of which was taken very early in the morning, almost immediately after the meat had been placed in the commercial room, another six hours later, a third shortly after the leak had been discovered in the bonnet joint, and the machinery had been stopped for repairs—the accident occurred about 1 o'clock P. M. (R., 165)—and the last, after the machine had been stopped for many hours, to remake the joint on the bonnet of the condenser.

The immediate effect of opening a properly chilled commercial box during the loading of meat, and the placing in it of a great quantity of dressed beef, of a temperature from 32 degrees to 36 degrees, is a great rise in the temperature of the room, and, in consequence, of the brine circulating about it.

The appellant's witness, *Fleming*, says (R., 57):

"Q. After you have opened the room of a temperature of 20 degrees and placed a cargo of meat in it, how much rise usually is there in the temperature of that room in the summer time, in July weather?

"A. It will run up to *20 degrees above that.*"

And the witness is giving an opinion founded upon normal conditions of the meat, which *Rossi* says is usually chilled downed to about 36 degrees before it is brought to the dock. (R., 48.) But in this case, the weather was very hot (R., 200), and the meat when put into the box was at a temperature of 54 degrees. (R., 188.) If a rise of temperature of 20 degrees in the commercial box is to be expected when meat is put in at a temperature of 36 degrees, a rise of 25 degrees at least, might most reasonably follow the loading of a great quantity of meat of 54 degrees,—a condition of the meat for which the shipper's negligence was responsible. It is usually past midnight before the loading is complete, the box closed, and the refrigerating machinery restarted (R., 200, 86). It was about this time, shortly after the sealing of the box, that the first observation of the temperature was taken ; and a temperature for the *commercial box* of 45 to 48 degrees, allowing that is, only for the admitted rise of 20 to 23 degrees for the loading of the meat at a proper temperature, certainly would not be unreasonable under the conditions here.

The temperature of the *brine* would be correspondingly high. The appellants seem to have misunderstood the figures taken from the ship's log as to the temperature of the "incoming brine." "Incoming brine" as noted upon the log-book (R., 106), means the brine that has gone the rounds of the meat box and is coming back into the expansion coils, as *Cross*, defendant's own witness, defines it (R. 87).

> "Q. Can you tell what is meant by that phrase 'incoming brine'; whether it was the temperature of the brine going into the box or returning?
>
> "A. I should take it after it has traveled through the box and is coming back."

Between the temperature of this incoming brine

and of the outgoing brine upon which all the witnesses of appellants predicated their inferences as to proper temperatures, there is a very appreciable difference, varying directly with the actual difference of temperature of the outgoing brine, and of the commercial room. *Cross*, appellants' witness, says (R. 88):

> "The temperature of the returning brine is generally a few degrees higher when it has gone through the pipes."

Rossi, another witness of appellants, says (R. 38):

> "The practice is to have a temperature of 20 degrees in the inflowing brine, 25 to 26 degrees coming back to the refrigerator to be cooled again, and that corresponds with the temperature of the room of about 34 to 35 degrees."

The cold brine as it is forced through the tubes of the commercial room absorbs the heat and thus reduces the temperature of the room—and it follows that much greater heat is absorbed in reducing the temperature of a room at 45 or 48 degrees than of a room at 35 degrees, and that the temperature of the brine is therefore correspondingly increased.

This brine, at comparatively high temperature, returns to the pipes or coils of the expansion chamber, and through the absorption of its heat in the expansion of the liquid ammonia, is cooled again; but its high temperature—that is, the greater amount of heat to be absorbed—requires higher pressure on the refrigerator gauge (an immediate deduction from the familiar law of expansion, the volume $=$ k, a constant $\times \frac{\text{temperature}}{\text{pressure}}$). This immediate dependence of the pressure upon the brine temperature is twice acknowledged by appellant's witnesses.

Fleming says (R. 55):

> "Q. Does that pressure depend upon the temperature of the incoming brine or upon what?

"A. Depending upon the temperature of the brine."

Roelker says (R. 27): "That pressure (on the refrigerator gauge) confirms the temperature of the brine which was just mentioned." Until a properly high pressure is obtained for the absorption of this greater amount of heat, the brine would necessarily return to the box, at a temperature somewhat higher than usual, and it is neither improbable nor censurable that in the hour following the closing of the box, during which the first observation was taken, a proper adjustment to the abnormal conditions of meat and weather may have been only approximated. Under all the circumstances, a temperature of the brine after its circulation through the box, of from 38 to 40 degrees at the first observation is not unreasonable. Indeed, *Roelker* admits (R., 31), that in the beginning of cooling down, not much difference of temperature would exist between the commercial box and the brine. The pressure on the refrigerating guage of 40 degrees is therefore also readily accounted for. And the pressure of 210 pounds on the condenser guage, *Young* (appellant's witness) admits was right. (R., 96.)—"You have got good condenser pressure there."

The temperature of the meat box after the meat has been put in does not come down immediately to the degree generally maintained during the voyage. Many of the questions to the appellants' witnesses as to the propriety of the temperatures of the brine and the commercial box are based upon the normal and usual figures of the room and brine at sea—after they have cooled down from the rise of temperature caused by the introduction of the meat,—and at a particular moment, not upon an

average of a number of observations on a day when there had been an accident which had stopped the machinery for several hours. All of which appellants' witnesses freely admit, as well as the considerable difference both of those circumstances would make. (R., 31, 47.) This puts quite another value than that asserted by the appellants, upon the opinions of these experts as to the brine and commercial room temperatures.

And these witnesses of the appellants also admit that it requires a very considerable time after the closing of the box before these temperatures, as to which they are testifying, can be obtained. *Rossi* says (R., 49), "this rise of temperature caused by the introduction of the meat cannot be brought down to the proper temperature of from 30 to 31 degrees for a considerable time." *Roelker* says (R., 34): "It takes considerable work to bring the meat down to a lower temperature. * * * A day or two."

Fleming says (R. 58): "Not more than twelve hours." But *Cross*, another of appellants' witnesses, chief engineer of the steamer Mesaba, says (R. 87):

> "Q. How long after you have closed and sealed the room do you succeed in reducing the temperature to that degree?
>
> "A. That depends upon outside temperature then, but as a rule we fetch it down the second day, down to what we want it."

At the time of the second observation, which *Shinn* says (R. 193) was sometimes taken in the first hour of the second watch, the machine had been working for seven or eight hours; and working properly, according to libellants' witnesses it could hardly have reduced the temperature more than seven or eight degrees. A temperature of 40 degrees in the *commercial room* at this observation would have been wholly satisfactory. That it was very probably the *actual* temperature, is suggested

by the temperature given by *Haverfield* for the time of sailing, two hours later. He says (R. 164):

> "XQ. About what was the temperature of the room prior to sailing?
>
> "It was standing about 38 or 40 degrees as near as I can remember."

The *brine* would, of course, come down much lower; but the temperature of the meat room was still abnormally high, and in circulating through it considerable heat would continue to be absorbed. The temperature of the brine entering the commercial room, appellants' witnesses say, should have been 20 degrees; the temperature of the commercial room was about 40 degrees. If as *Rossi* testifies (R. 38), a rise in the brine's temperature to 26 degrees occurred during circulation through a room at 34 or 35 degrees, a rise to 32 or 33 degrees would be wholly natural when the room was at 40 degrees. The pressure would hardly be changed.

Before the third observation was taken, the accident to the bonnet of the condenser had occurred. An effort to stop the leaking of the ammonia by driving wooden wedges into the bonnet joint was not successful (R. 175), and it was found necessary to stop the machine, pump out the condenser, and remake the joint (R. 207). Owing to the difficulty of making repairs at sea, the new joint was not completed until the next day, and it was not until the 5th of July, therefore, that the machine was again started.

Meanwhile the machinery of the ship's provision room was connected with the commercial room (R. 165, 207), and utilized as far as possible in bringing down the temperature of the meat box. It was, however, only half the size of the commercial machine, and had only half the other's power (R. 169). The cooling down of

the commercial box would necessarily be retarded. The actual efficiency of the smaller machine when at work on the commercial room is indicated by the figures given in the extract of the ship's log. This machine was kept running upon the commercial box, with only a short interruption, until the engines were disconnected after the second accident, and a single engine, continuing therefore the same capacity, was used on the commercial machine (R. 166, 207). The engines were not connected again until the 6th of July (R. 207), and during these three days the temperature of the *commercial room* remained at 42 degrees (R. 106). In other words, the smaller machine, or its equivalent, the single engine, was barely able to hold the temperature obtained. This is given at 38 or 40 degrees when the vessel left the dock (R. 164), from which it rose slowly to 42 before the morning of July 5th, at which point it seems to have been held constant. About the time of the third observation, an hour or two after the accident, and after the smaller machine was put on, it was probably 41 degrees. Six hours later, for the fourth observation, it was probably 42 degrees, at which it was held for the next forty-eight hours.

The immediate effect of the stoppage of the machinery upon the *brine* in the coils of the commercial room would be a very close approximation of its temperature to the temperature of the meat box. If there is an increase of six or more degrees for a single circulation of the coils (R. 38), a complete stoppage of the machinery would result very shortly in the disappearance by radiation of all difference in temperature; as is admitted by *Roelker* (R. 31):

> "XQ. And if anything was wrong with the machine so that it could not work, the tendency would be to bring the temperature of the brine and

the preceding temperature of the meat box more and more into accord, would it not?

"A. It would."

The rise in temperature of the box shows further that it was impossible to reduce materially the temperature of the brine even after the smaller machine had been connected. The incoming brine at both the later observations was probably therefore, 41 or 42 degrees.

Had the figures of the various temperature observations been those we have been discussing, they would have been in nowise unreasonable under the circumstances of this particular voyage, nor would they have indicated to the engineers that their machinery was working improperly. *Yet the average of the four temperatures we have given for the commercial room is 42 degrees, and the average of the brine temperature is 39 degrees,—a very close approximation to the log figures of 42 degrees and 40 degrees respectively, which the appellants urge are certain indicia of unfit refrigerating apparatus.* They indicate nothing of the sort. The averages obtained in the preceding discussion are based upon temperatures at the time of receiving the meat suggested as proper by appellants' refrigerating experts—twenty-five degrees for the commercial room and twenty degrees for the brine; and they were worked out upon the assumption of an ordinarily efficient machine. Their comparison with the log figures readily explains the temperatures there indicated. The log temperatures of July 4th are simply the normal results of the loading of an overheated cargo of dressed meat in a properly chilled commercial room, in intensely hot weather. They fail utterly therefore to sustain the inference that the temperature was improper when the meat was received.

RECAPITULATION.

The figures for the four observations of July 4th, shown, under the evidence of libellants' and respondent's witnesses, to have been both proper and probable:

	Temp. of commercial box	Temp. of brine
1st observation (after putting in meat)	45°	40°
2d observation (after working 6 hours)	40°	33°
3d observation (during the stoppage)	41°	41°
4th observation (hardly holding temperature while working at half capacity)	42°	42°
Averages of four observations	42°	39°
The averages given in log book	42°	40°

N. B. If it is argued that no permanent account was taken of temperatures prior to sailing, and that the log book figures for July 4th are averages of the two observations only, which were taken after the vessel left the dock, then under this view of the case, the observations from which the averages were calculated were taken about the times and under the conditions of the third and fourth observations discussed on pages 50 and 51.

The figures would be as follows:

	Temp. of commercial box	Temp. of brine
1st observation (during the stoppage)	41°	41°
2d observation (hardly holding temperature while working at half capacity)	42°	42°
Averages of two observations	41½°	41½°
The averages given in log book	42°	40°

IV.

The inference from the working of the ship's refrigerating machine.

It is said that because the ship's machine maintained satisfactory temperatures in the ship's box or refrigerator, the commercial box must have been in unfit condition to receive the meat. But how does this follow? What comparison can be made with the ship's box, which is only half the size of the commercial box? (R. 169), especially where, as *Doran*, the superintending engineer tells us (R. 160), the ship's machine was pretty large for the size of the provision box.

"There was such a machine available and we took it. We did not proportion the thing exactly to its work."

Moreover, the circumstances and conditions of the two boxes were quite different—the ship's refrigerating machinery did not break down, and the temperature of the ship's box did not rise in consequence, nor was the ship's box filled with overheated meat.

As *Kilburn* the maker testified with reference to the two boxes (R. 131).

"You cannot make any comparison there at all."

The respective figures of the two boxes, after all, do not vary greatly during the first two or three days of the voyage,—only from four to six degrees. On July 4th the ship's store room was 36 degrees (average of day's observations) while the commercial room (average) was 42 degrees. On July 5th the ship's store room was 38 degrees, commercial room 42 degrees. On July 6th the ship's room was 38 degrees, the commercial room, 42 degrees. The difference in the temperatures was not great as alleged by the appellants, and a very slight reduction of the temperature of the commercial box would have sufficed to bring it down to that of the ship's box.

V.

The inference from the occurrence of the accident soon after sailing.

It is argued, that because the trouble with the machinery occurred two or three hours after leaving the dock, a presumption of unseaworthiness or unfitness of the machine is thereby raised, in analogy with the unseaworthiness of vessels in such cases.

To this it is sufficient to answer.

(*a*) The dressed beef clause (as already shown) relieves the ship owner from the warranty of seaworthiness; that warranty is no longer in the case. As McPherson, D. J., said in the Court below (R. 211):

> "It was argued that the machinery could not have been in good condition at the beginning of the voyage, because the breakdown occurred so soon after the vessel set sail; and therefore that in analogy to the rule of evidence concerning seaworthiness, the burden of proof was on the respondent to explain the causes of the various accidents, but I do not think the conclusion follows, where the carrier's liability has been modified by such an agreement as the clause in question."

(*b*) Moreover, it is the testimony of appellants' own experts, that abnormal conditions of the atmosphere, the water and the meat, impose an unusual burden upon the refrigerating machinery. When they co-operate with the usual strain put upon the engines for many hours after the loading of the meat, the possibility of a breakdown is greatest. It is quite reasonable that a wholly proper machine should spring a leak or break a shaft under such circumstances. The likelihood of the machine's giving way precisely when it did and as it did, rebuts any inference which might otherwise be drawn from the occurrence of the accident so soon after sailing.

Roelker (R. 30):

XQ. "And if there is to be a breakdown in the refrigerating machinery, you would be more apt to expect it when the temperature of the water and air were high than when they were low?

A. I would."

Rossi (R. 46):

XQ. "If there is a weakness or defect it will be more apt to manifest itself at that point than if the water was cooler?

A. Surely that cannot be contested."

Fleming (R. 64):

XQ. "Therefore the hardest work and the greatest strain upon the plant comes either in hot weather or just after the meat has been put in, or when both of these things combine; does it not?

A. Yes.

XQ. *And if the meat is put in just before the vessel sails a defect in the machine might become manifest just after sailing, which could not have been noticed before the sailing, could it not, owing to the meat having been put in?*

A. *Yes.*"

VI.

The inference of unfitness of the refrigerating machinery from the failure to reduce the temperature properly after the breakdown and temporary repairs.

Based on certain statements of the second and third engineers to the effect that the machinery worked properly after the accident and the repairs at sea, it is argued that therefore there must have been fault in the machine itself, because it still failed to bring down the temperature to the normal figure. It must be noted that it was not the business of the second and third engineers to observe or

examine the temperatures. (R 169, 176.) They were speaking therefore of the mechanical working of the machine, without reference to the results produced; and so far as the mere working of the machine was concerned, there was no further trouble or break down after the repairs at sea.

It is true the temperature was not properly reduced until nearly the end of the voyage but this was due to the fact that only temporary repairs could be made at sea, and these under circumstances of great difficulty. T his is the adequate explanation.

The heat of the engine room and the suffocating vapors of the escaping ammonia created an atmosphere in which it was most difficult to work. (R. 207.) The engineers were obliged to go into the room with helmets on (R. 165), and their repairs could hardly have been wholly satisfactory. Further, they were most difficult as *Paul* reported (R. 207); and in his testimony (R. 180) he said of the repairing, "It was a hard job to do, as the crank shaft was bent." *It was very hard in the absence of the equipment for repairing*, which can be had only on land. The shaft was taken out and straightened, as *Shinn* says (R. 193), to the best of their abilities. But he goes on, "You can not do much at sea in a case like this. We got them together, and the machinery worked after that." It worked; but the repairs were only temporary and necessarily imperfect. As *Haverfield* testifies (R. 167), the work after the accident was only "very nearly" as good as that of a new machine. The results produced were not satisfactory. Permanent repairs were necessary, therefore, on arriving at Liverpool. These consisted solely in replacing the injured parts. The rest of the machine was merely overhauled. And after these permanent repairs, it worked well.

The successive accidents at sea and the difficulty of making proper repairs, sufficiently explain the failure of the machine satisfactorily to reduce the temperature until after some days had elapsed.

VII.

The cause of the accidents.

Although these were not and could not be absolutely demonstrated by the ship, at least a reasonable explanation of why the leak and breakage occurred has been offered.

The extraordinary heat of the atmosphere, the water and the meat, imposed a very unusual burden upon the refrigerating machinery, which, co-operating with the usual strain about the time of sailing, is wholly adequate to account for the leak in the bonnet joint,—a point of weakness where extreme pressure would first result in a break. And the continued driving of the engines at high pressure, to overcome the high temperature in the meat box, readily explains the breaking of bolts, the cracking of the piston, and the bending of the shaft, on the second day at sea.

From the explanation of the working of the Kilburn Machine, on page 3, it follows that the pressure and strain of the compression pumps, that is, the amount of work they have to do to compress and condense the ammonia gas, is in direct proportion to the temperature of the sea or river water surrounding the coils in the condenser. The colder the water (and also the surrounding air), the more readily is the compressed ammonia condensed and liquified. If the weather be warm and the water also warm, on the contrary, the work of the pumps is greatly increased. And the time of hardest working, in any weather, is shortly after the beef has been placed

in the refrigerator, when there is a rise in its temperature of twenty degrees, requiring extra work for a considerable period of time (twelve to forty hours) to overcome.

At the time of the sailing of the "Southwark," July 4, 1894, the weather at Philadelphia was very warm, as was also the river water.

McKernan says (R. 137) the weather was "very warm."

Haverfield (R., 161) and *Aldcraft* (R., 173), the second and third engineers respectively, say the same.

The meat too, when put into the refrigerating room, was unusually warm. The proper temperature is given by appellants' witness, *Cross*, at from 34 to 40 degrees (R. 92.) But the temperature of the meat in the present case was 54 degrees.

Paul the chief engineer, says (R. 182):

The heat of the meat when put in was fifty-four degrees."

Shinn, the refrigerating engineer, says (R. 195):

The weather was excessively hot at the time. The heat of the meat when put in would be 54 degrees."

All the conditions of water, atmosphere and meat, therefore, were abnormal.

Their effect upon the work of the refrigerating machine is not only to be inferred from the process of refrigeration, but is frankly admitted by the appellants' witnesses.

Roelker says (R. 30):

XQ. "And if there should be any weakness or difficulty in the machine, it would be more likely to manifest itself when the water was at a high temperature than at a low?

A. It would.

Rossi says (R. 46):

XQ. "If there is a weakness or defect it will

be more apt to manifest itself at that point than if the water was cooler?

A. Surely that cannot be contested."

Fleming says (R. 64):

XQ. Therefore the hardest work and the greatest strain upon the plant comes either in hot weather or just after the meat has been put in, or when both of these things combine; does it not?

A. Yes.

XQ. And if there is any defect, latent or otherwise, in a machine, it would be more apt to manifest itself at that time than at other times, would it not?

A. Naturally.

XQ. *And if the meat is put in just before the vessel sails a defect in the machine might become manifest just after sailing, which could not have been noticed before the sailing, could it not, owing to the meat having been put in?*

A. *Yes.*"

Cross says (R. 92):

A. "The higher the temperature, the more work the machine has to do.

XQ. And that particular time would bring pretty hard work upon any machine?

A. Decidedly."

It is to be noted that it was a *joint* that began to leak.

Kilburn, whose firm constructed the machine, tells us of the effect of heat, and shows that the joint of the bonnet of the condenser which first began to leak is necessarily its weakest part, and the place, the pressure being great, which would be the first to give way.

(R. 118):

Q. "On that condenser, when the pressure is great, whether from the high temperature of the

water or any other cause, what would be naturally the weakest part?

A. The joint."

And he adds (R. 119):

A. "If you have got hot condensing water you get a very high pressure, and, if you take water at 73 degrees, you would * * * * have a very high pressure, which would be liable to cause that trouble on the weakest part of the machine. As a rule, you know the temperature of the ocean is about 64 degrees."

Appellants' expert, *Cross,* (R. 93) admits:

Q. "Where there is an excess of pressure the joint is the place that is apt to go.

A. Exactly; where the *temperatures are high* and there is trouble with ammonia."

In view of these established facts, the opinions of the various witnesses as to what caused the joint of the bonnet to leak at the time it did, are pertinent. *Kilburn,* the maker, when asked in cross-examination what would cause the increase of pressure and the leaking of the joint of the bonnet on top of the condenser answered (R. 127):

"Principally a hot room and hot water; there are a hundred causes that might cause it, but they are the principal ones; but the others with all due respect you cannot use; there is no possibility of them coming up in this suit. I have had so much experience; I know where the trouble was; *the trouble was with the water."*

Doran, a superintending engineer of twenty years experience in that position gave as his view:

"Well the existence of this abnormal condition of the water and air and all the surroundings would account for perhaps the slight leakage in the con-

denser bonnet, and then afterwards the fast working of the machine to overcome this high temperature caused them to break." (Record 155)

* * * * * * * *

Q. "In your opinion would the temperature explain the breakage narrated in that report?

A. Yes, sir.

The ship's engineers testify to the same effect. (R. 162, 173).

Therefore, although it cannot be proved why the leak occurred on July 4th, at least a rational and an adequate explanation is given of the cause of the trouble, and of its occurrence when and where it did.

On the following day came the breaking of the connecting rod bolts, the bending of the connecting rod, the compression piston, and the crank shaft, all connected with the compression pump, on which the hardest strain was imposed.

The engineers were unable to give any confident explanation of this breakdown. (R. 181, 194.) The engines had been working properly. Apparently nothing was wrong. Defects in the bolts, if any existed, could not be seen. They were boxed in. And the rod and shaft were working all right. The accident was entirely unforseen. The bonnet of the condenser had nothing whatever to do with the broken bolt, and the leak in it was no indication that there was anything wrong with anything else. (R. 181, 194.)

But the chief engineer suggests that there was great strain put upon the machine by reason of the high temperature of the weather and of the meat. (R. 182.)

This unusual strain, continued over an unusual period of time,—because the engines had to bring down the temperature of the box which had risen again in

consequence of the stoppages after the first accident,—is certainly a very reasonable explanation for the second breakdown.

Doran said (R. 155):

> "The fast working of the machine to overcome this high temperature (after the leakage and stoppage) caused them to break. * * * * * * Instead of going about it deliberately, taking their time, the machine must go very fast, as to set up extra friction and danger to the machine in doing it.
>
> Q. In your opinion would the temperature explain the breakage narrated in that report?
>
> A. Yes, sir."

Kilburn says (R. 120):

> Q. "Is there any connection between the leak in the bonnet and the cracking and bending of the rods and bolts connected with the compression pump?
>
> A. Only the intense pressure it had to work against.
>
> Q. The intense pressure of the pump would both affect the parts of the pump itself in its working, and also would affect the bonnet upon the condenser into which it was pumping condensed ammonia?
>
> A. The condenser carried a larger load than the machinery would carry; as I say, that might have been only instantaneous. It might not have had any endurance at all, and then equalized, and then it would all come in again with a flush.
>
> Q. Is it possible to avoid that contingency?
>
> A. We have never been able to except by cold water."

That the machine might break without the fault of anyone, and without apparent cause, of course was admitted even by the appellants' own witnesses. *Roelker*

(R., 3) has known them to break down without any visible or evident reason for doing so, even when all proper attention has been given to them.

Rossi says (R. 44):

XQ. "There are defects in all machinery that cannot always be seen beforehand?

A. Yes, certainly."

Cross says (R. 92): "Any piece of machinery is liable to breakdown," And (R. 94) he "can only surmise what might have been the cause."

Young (R. 97) is very frank:

XQ. "And you sometimes break down without any fault of anybody, but the machinery gives out?

A. No fault whatever; even this morning we had a breakdown ourselves, and I got it going again in about two hours' time.

XQ. So that there may be a break in the compressor without the fault of anybody, but there might be fault in not treating that break properly afterwards?

A. You can't help a great deal once you get a break in your compressor or the compressor is filled up with air. When you close it up again or pump it up again all this air goes right into the condenser.

XQ. But the compressor may break without fault of anybody?

A. Oh, yes."

And *Fleming* (R. 66) and *Young* (R. 97) agree with *Cross* that in the repairing of the bonnet, and the pumping out of the condenser for that purpose, it was possible, without any fault on the part of the ship's engineers, for some ammonia to be lost, or some air to enter the condenser, the effect of which would be a diminished effici-

ency of the machine throughout the remainder of the voyage.

The most probable cause for the successive breakdowns of the refrigerating machinery was the temperature conditions prevailing on this particular voyage. Their existence is conclusively established, and their admitted adequacy entitles them to much more weight of probability as reasons for the accidents than the suggestions of possible omissions, offered by the libellants' experts.

As to the care for the machine by those in charge, we are entitled to accept as true the uncontradicted statements of the ship's engineers in answer to cross-interrogations, that all necessary and proper measures were adopted to put and keep the machine in proper working order.

Paul says (R. 190):

> "I did everything that was necessary to be done in every way. * * *
>
> "Nothing so far as I know could have been done in any way to prevent the accident."

Shinn says (R. 202):

> XQ. "State whether you adopted all the measures within your knowledge to put the refrigerating machinery on the steamship 'Southwark' in proper and efficient working order prior to her departure from the dock?
>
> A. "Yes. * * * There was nothing required to be done to the machinery at the time we left. Everything that was needed was attended to."

VIII.

The testimony of E. Platt Stratton.

The appellants, on page 21 of their brief, allude to the testimony of *E. Platt Stratton*, who said he visited the Southwark in December 1894, and interviewed the chief engineer of the ship, and the engineer in charge of the refrigerating apparatus, who made certain statements to him. These at best would be hearsay, and incompetent to bind the ship; but it appears that both the chief engineer and the refrigerating engineer upon the voyage in question *were no longer with the ship, nor in Philadelphia at the time of the alleged interview.*

The chief engineer *Paul* had left in October 1894 (R. 186) and the refrigerating engineer had left in October or November of the same year (R. 192), so that the statements testified to by *Stratton* were made by some person unknown and unnamed without means of knowledge, and totally incompetent in any respect to bind the ship.

As to the fact mentioned, it is explicitly denied by those who were present; and the nature of the subsequent leak in the joint of the bonnet, which was not split (R. 182, 194), and which could not be split without destroying the whole machine, readily indicates how the witness *Stratton* after the lapse of several years, distorted the occurrence into a splitting of the bonnet itself.

IX.

NOTE.—As to the time when the testimony of the ship's engineers was taken.

The chief engineer *Paul* and the refrigerating engineer *Shinn* had left the service of the ship and company several months before the present suit was brought,

which was not until the 21st day of February, 1895, nearly eight months after the accident. (R. 86, 192.) They were no longer in the employment or under the control of the ship owner. The chief engineer had submitted a report at the time, and had said that he could then throw no further light upon the cause of the breakdown. The correspondence between counsel (R. 102, 105) (to which the Court is referred if deemed important) shows that the appellants occupied nearly three years in taking their testimony, and the appellee was entitled to wait until it was closed before offering testimony in rebuttal. After having energetically called upon appellee to examine these witnesses, the appellants afterward with equal energy objected to their being examined. If the Appellants had brought suit promptly the engineers would have then been with the ship and could have been examined in Philadelphia. As it was, it was never possible to examine them except on commission or at a great distance from the place of trial.

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